



A.D. 1867, 14th JANUARY. N° 98.

S P E C I F I C A T I O N

OF

SYLVAN DE WILDE.

APPARATUS FOR PROBING SHOT WOUNDS.

LONDON:

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A.D. 1867, 14th JANUARY. N° 98.

Apparatus for Probing Shot Wounds.

LETTERS PATENT to Sylvan de Wilde, of Alexandra Terrace, Hatcham Park Road, in the County of Kent, C.E., for the Invention of "IMPROVEMENTS IN APPARATUS USED WHEN PROBING FOR BALLS OR PROJECTILES."

Sealed the 5th July 1867, and dated the 14th January 1867.

PROVISIONAL SPECIFICATION left by the said Sylvan de Wilde at the Office of the Commissioners of Patents, with his Petition, on the 14th January 1867.

I, SYLVAN DE WILDE, of Alexandra Terrace, Hatcham Park Road, in the
5 County of Kent, C.E, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN APPARATUS USED WHEN PROBING FOR BALLS OR PROJECTILES," to be as follows:—

This Invention has for its object improvements in apparatus used when probing for balls or projectiles. In constructing and combining apparatus
10 according to this Invention a probe is formed of non-conducting material, and suitable for entering wounds. Within this probe are two wires or metal conductors insulated from each other and capable of sliding within the probe which acts as a sheath to cover the two wires or metal conductors. The other ends of the two wires are attached to two binding screws on a stool, table,
15 board, or other suitable structure, on which is fixed an electro-magnet, the armature of which is in connection with the striker or hammer of a bell, so as thereby to give notice when an electric circuit is completed. A galvanic battery is connected to such table, stool, board, or other structure, and a wire

De Wilde's Improvements in Apparatus for Probing Shot Wounds.

in connection with one of the poles of the battery passes round and forms the coil of the electro-magnet, and is connected to one of the wires in the probe or instrument before mentioned whilst another wire from the other pole of the battery is connected with the other wire in the probe. In using this instrument or apparatus the probe is introduced into a wound till it meets 5 with an obstruction, when the two wires are protruded through the end of the probe, and if the obstruction be a ball or projectile of metal an electric circuit will be completed, and the bell will be sounded by the electro-magnet acting on the striker or hammer of the bell.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed 10 by the said Sylvan de Wilde in the Great Seal Patent Office on the 13th July 1867.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, SYLVAN DE WILDE, of Alexandra Terrace, Hatcham Park Road, in the County of Kent, send greeting. 15

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fourteenth day of January, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirtieth year of Her reign did, for Herself, Her heirs and successors, give and grant unto me, the said Sylvan de Wilde, Her special licence that I, the said Sylvan 20 de Wilde, my executors, administrators, and assigns, or such others as I, the said Sylvan de Wilde, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain 25 and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN APPARATUS USED WHEN PROBING FOR BALLS OR PROJECTILES," upon the condition (amongst others) that I, the said Sylvan de Wilde, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and 30 ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Sylvan de Wilde, do hereby declare 35 the nature of the said Invention, and in what manner the same is to be per-

De Wilde's Improvements in Apparatus for Probing Shot Wounds.

formed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

The said Invention relates to a peculiar construction of apparatus for discovering, indicating, and extracting bullets or pieces of metal or bodies
5 conductors of electricity hidden or embedded in wounds or in bodies comparatively non-conductors.

The apparatus consists of four parts, viz^t., the battery, the alarum, the probe, and the forceps, with their accessories, all contained, it may be, in a box measuring 11 inches \times $3\frac{1}{4}$ inches \times $2\frac{1}{2}$ inches.

10 Figure 1 of the annexed Drawing shows in plan the opened box and method of stowage; and Figure 2 is a vertical section through the closed box. The battery is a vulcanite cell having a lid which screws down so as to be water-tight, it is shewn at B, B, Figures 1 and 2. A piece of carbon *c* and of zinc *z* drop into slots at the interior ends of the cell, and there come into
15 contact with platinum springs, which are securely rivetted to conductors connecting them with strips of brass terminating in springs at *a*¹, *a*¹, where contact is made with the conductors of the alarum. This consists of brass strips *t*, *t*, mounted for the most part on an insulating bed of vulcanite, shewn in Figure 2 as a thick black line. One strip conducts to an electro-magnet M,
20 and thence another passes to the terminal T, a third proceeds simply direct from contact with the spring *a*¹ to the terminal T¹. The electro-magnet is furnished with an armature to which is attached a hammer which strikes upon the bell *b* and is brought back by the spring *o*. A sheet of glass preserves this alarum part of the apparatus from dust and injury; S is a
25 box made of vulcanite having a screwed stopper at its corner, and having capacity for 50 charges of the battery cell B, equal to about 3 years continuous service. Two spare zincs and two spare carbons are shewn in a receptacle at *c*¹, *c*¹, *z*¹, *z*¹.

The probe consists of two tempered steel wires, a portion of whose length
30 is passed through and firmly fixed in an ivory handle, and terminating in points in one direction, and in bell-shaped terminals of german silver in the other direction. These wires are insulated from each other by a strip of ivory or vulcanite lying between them.

Figure 3 is a cross section through the ivory handle *h*, the wires *i*, *i*, and
35 insulating strip *k* between them.

Figure 4 is a longitudinal section of the entire probe; the handle has rings turned upon it to afford a firm hold; between the points and the handle the wires have a slender vulcanite tube *q* passed over them, shewn in longitudinal section in Figure 4, and in cross section at Figure 5, which also shews the

De Wilde's Improvements in Apparatus for Probing Shot Wounds.

dividing slip and steel wires. The vulcanite tube is screwed into a short length of german silver tube s upon which is mounted the shield s^1 .

Figure 6 is a cross section taken at the line 1, 1, Figure 4. The tubes thus screwed together are free to slide to and fro about a quarter of an inch upon the wires and ivory handle, being pushed forward when desired by pressure of the finger upon the shield and thrown back by the spiral spring s^{11} , which obtains purchase upon two screws inserted into the handle through slots in the german silver tube.

The forceps consist of two tempered steel limbs of the shape shown in Figure 7, semi-elliptical in cross section and turning on a pivot at p ; one of the limbs has rivetted upon it a slip of ivory extending from l to l^1 ; this combined with the ivory bushing of the pivot, shewn in cross section by the thick black lines in Figure 8, and the small piece of ivory at m completely insulates one limb from the other in all positions; at n, n , are bell-shaped tubes screwed into the bows, and into which are soldered very pliable plaited wires covered with silk about 2 feet long, which are coupled and soldered in the manner shewn in Figures 4 and 7, at \times and $-$ to similar wires soldered into the before-mentioned terminals of the probe.

Method of using.—The battery cell is lifted out and the lid taken off, about a salt-spoonful of sulphate of mercury is taken from the box S and put into the cell, which is then filled with water; the lid is now screwed down, the cell wiped round and replaced with its springs in contact at a and a^1 . The coupled ends of the wires \times and $-$ are now to be attached to the terminals T, T^1 , or vice versa. (The relative position of the zinc and carbon in the cell and the conductors attached to these terminals is of no moment.)

It will be perceived that in either instrument a conductor between its points will complete the circuit, therefore a billet or piece of metal being touched with the probe or seized with the forceps will cause the bell to ring by the electro-magnet attracting its armature. The probe being handled in the manner of a pen the shield s^1 is pushed forward by the second finger, which has the effect of covering the points of the wires with the vulcanite canula or tube. The instrument is now inserted into the wound until the supposed bullet is felt; the tube is then allowed to retreat by the withdrawal of the second finger; the substance is now explored, and if metallic the bell will ring. The advantage of the keen points of the wires i, i , is their ability to obtain contact through pus or fibre which may overlie the bullet. The lodgment being ascertained the forceps are brought in requisition, and these equally give a ring upon the bell when the bullet is seized, the hammer falling back when contact is lost. The curved points obtain good contact, seize

De Wilde's Improvements in Apparatus for Probing Shot Wounds.

the bullet in any position, allow it to revolve to that of least resistance, and enable the operator to niggle it out where it resists the direct pull, the scissor form allowing hold to be taken and loosed with the utmost readiness.

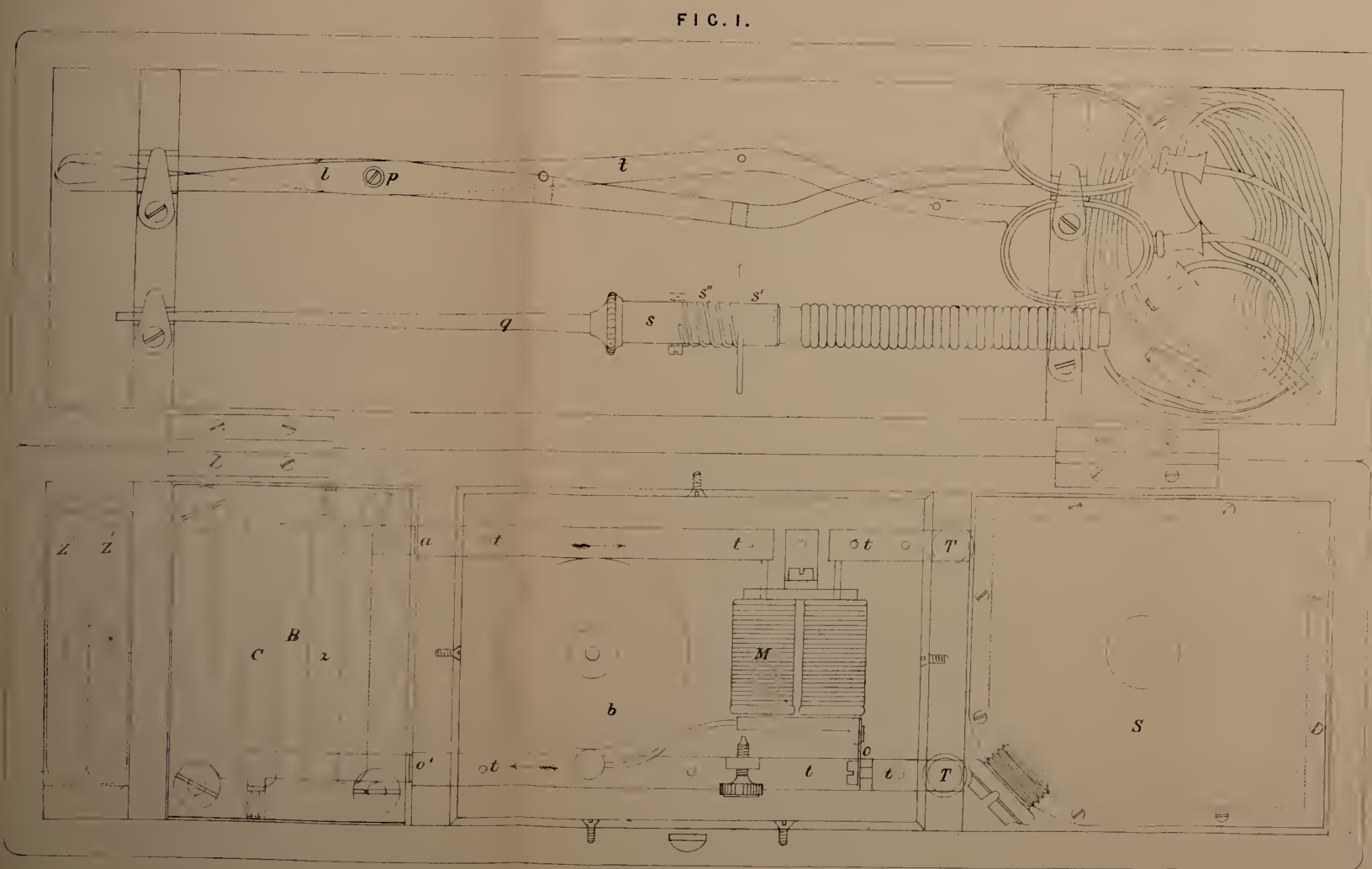
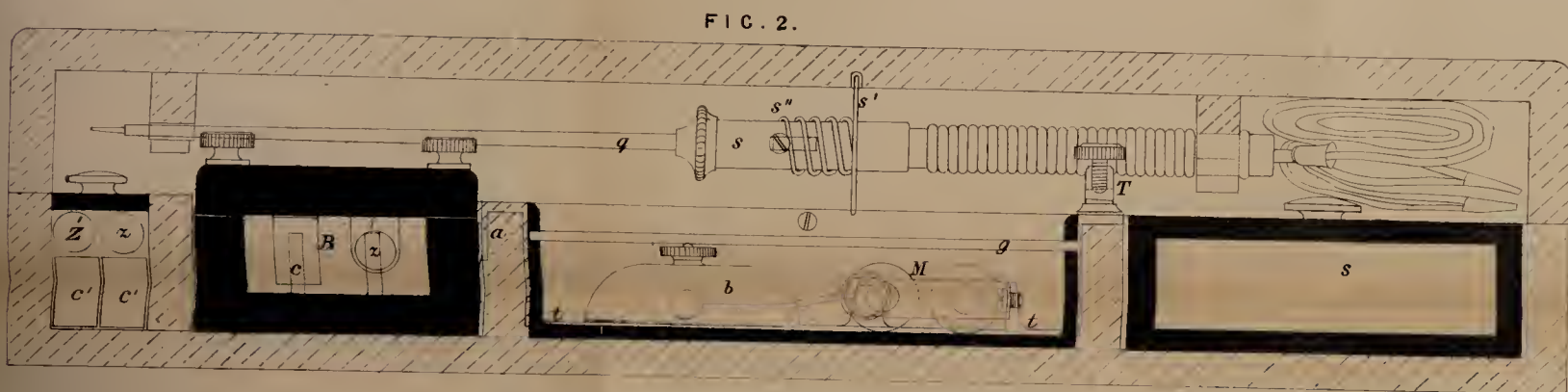
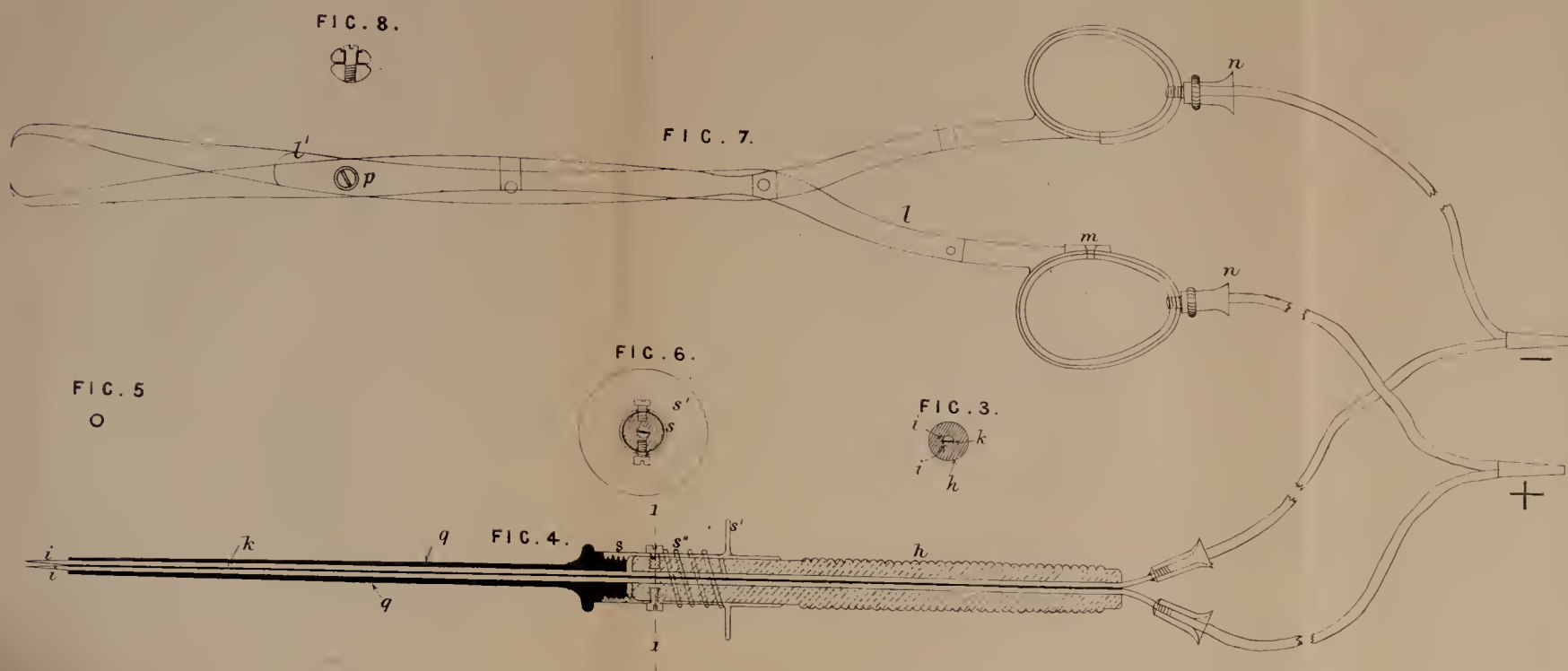
Having thus described the nature of my said Invention, and the manner of
5 performing the same, I would have it understood that what I claim is the
arrangement of apparatus used when probing for balls or projectiles as above
set forth, and the arrangement of the probe, consisting of two insulating conduct-
ing blades fixed in a handle and inclosed in a non-conducting tube which protect
their points whilst they are introduced into the wound and can then be drawn
10 back as herein-before described.

In witness whereof, I, the said Sylvan de Wilde, have hereunto set my
hand and seal, this Thirteenth day of July, in the year of our Lord One
thousand eight hundred and sixty-seven.

S. DE WILDE. (L.S.)

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Printers to the Queen's most Excellent Majesty. 1867.



The filed drawing is not colored.

Drawn on Stone by Malby & Sons.

